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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/561,952

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EXAMINER

LANGMAN, JONATHAN C

ART UNIT

PAPER NUMBER

1784

NOTIFICATION DATE

DELIVERY MODE

05/20/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/561,952	<b>Applicant(s)</b> KUMAGAI ET AL.	
	<b>Examiner</b> JONATHAN C. LANGMAN	<b>Art Unit</b> 1784	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-7 is/are pending in the application.
- 4a) Of the above claim(s) 4-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hotate et al. (US 5,448,418) in view of Coppola (US 4,124,667) or Otsuki et al. (6,090,733).

Hotate et al. teach a structure as seen in Figure 1, which comprises a bulk material, 1, completely coated on all sides with a layer, 2, which comprises a top surface 3. The bulk material comprises SiC in the shape of a rectangular plate having a size of 100mmx300mmx20mm (col. 2, lines 35-40). The teaching of Hotate that the SiC body is shaped (col. 3, lines 1-10), implies that the body is cast into a desired shape and then sintered to form a desired shape as is known in the art. Hotate teach that the bulk material is coated with a CVD SiC coating with a surface roughness of 0.1 nms (col. 3, lines 20-25). The coating of sample 2 is a single CVD coating (col. 3, lines 25-30) and as seen in Table 1 (col. 4, lines 58), the coating of sample 2 has a thickness of 30 microns which falls within the applicants instantly claimed range.

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Hotate fails to teach that the coated substrate is a “dummy wafer”. However, the mirror of Hotate has all of the same structure as instantly claimed, and the applicant has not defined the term “dummy wafer”. The term “dummy wafer” is merely a descriptive term that does not imply any structural limitations to the claimed article, and therefore the mirror of Hotate is said to read on the claims as presented.

Hotate fails to teach that the bulk material comprising SiC is formed by sintering a mixture containing a silicon carbide powder and a non metallic sintering auxiliary.

Coppola et al. teach that sintered shaped bodies of silicon carbide can be formed by shaping bodies of silicon carbide powder and phenolic resin (abstract). Phenolic resin is taught by the applicant to be a non metallic sintering auxiliary (instant specification, page 3, lines 14 and 15).

It would have been obvious to a routineer in the art to provide the shaped SiC body of Hotate et al. by any known means in the art, including that which is taught by Coppola, as Coppola has shown that these are known and obvious methods of forming SiC bodies in the art.

Alternatively, Otsuki et al. teach that using non metallic sintering aids are known in the art of forming sintered SiC compacts (See at least the abstract of Otsuki et al. (6,090,733)). Otsuki teaches that by using nonmetallic sintering aids in SiC as opposed to using metallic sintering aids, the resultant SiC will have less contamination (col. 3, lines 12-18). Accordingly, it would have been obvious to one having ordinary skill in the art to employ non-metallic sintering aids in the SiC compact of Hotate, since Otsuki teaches that such sintering aids are conventionally used in the art and, moreover, that

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non-metallic sintering result in compacts having desirable properties, e.g., less contamination (Otsuki, col. 3, lines 12-18).

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hotate et al. and Coppola or Otsuki, as applied above, in view of Wakugawa (US 4,856,887).

As described above, Hotate teaches forming rectangular plates of SiC coated with CVD SiC. Hotate, does not describe the mirror to be a "dummy wafer", however, as described above, no structural limitations are given to the term "dummy wafer". Even if structural limitations were to be construed from the descriptive term "dummy wafer", which the Examiner does not contend to be true, it is known in the art to form mirrors in the same shapes which are described within the instant specification.

Wakugawa et al. teach lightweight mirrors comprising Sic cores, coated with CVD SiC as an outer layer (abstract). As seen in figure 1, the mirror of Wakugawa has the same shape as instantly described (col. 2, lines 29-30).

It would have been obvious to a person having ordinary skill in the art at the time the present invention was made to form the mirrors of Hotate in to circular shapes, as Wakugawa has shown that circular mirror are commonly used in the art, and this would have been an obvious design choice for a routineer in the art.

### ***Response to Arguments***

Applicant's arguments with respect to Kojima and Saito in view of Kojima have been fully considered and are persuasive. The surface roughness of Kojima is well outside the applicants instantly claimed range. The rejections over these references have been withdrawn.

The applicant amended claim 1 to recite a thickness of 20-40 microns. The applicant argues on page 6 of the remarks that Hotate teaches a thickness of the Sic Film 3 after polishing is 30-300 microns as well as a subsequent layer 4 of CVD sic is also 30-300 microns, which would lead to a total thickness of 60 microns, outside the applicants claimed range.

The examiner disagrees. The applicant must look to the entire disclosure of Hotate. The rejection set forth by the Examiner, is based on Hotate's teaching of sample 2, which is a single coating. The applicant is directed to Figures 3 and 4 which show a single polished coating, 3, on the base, 1. The applicants are further directed to Hotate, col. 3, lines 28-30 which state "In samples no.1 to no. 5, a single SiC coating 2 is formed on the base 1"). As seen in table 1, the thickness of sample 2 is 30 microns. Hotate discloses that the upper surface of the first SiC coatings 2 are smoothed by polishing or lapping so that the surface 3 of the SiC coatings has a surface roughness of RMS 10 angstroms as shown in Figure 4 (col. 3, lines 21-25).

The applicant asserts that in Hotate the bottom surface is not polished. This is irrelevant, as this argument is not commensurate with the scope of the claims.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. LANGMAN whose telephone number is (571)272-4811. The examiner can normally be reached on Mon-Thurs 8:00 am - 6:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCL

/Timothy M. Speer/  
Primary Examiner, Art Unit 1784